

MILLER  
Appl. No. 10/516,953  
November 2, 2009

**AMENDMENTS TO THE DRAWINGS:**

The attached sheets of drawings include changes to Figs. 1-3. These sheets, which includes Fig. 1-3 replace the original sheets as filed. Figure 1-3 have been labeled as "PRIOR ART."

Attachment: Replacement Sheet(s)

**REMARKS/ARGUMENTS**

Claims 2-29 stand in the present application, claims 19-27 being considered on the merits. In addition, claims 19-27 have been amended and new claims 30-37 have been added. Reconsideration and favorable action is respectfully requested in view of the above amendments and the following remarks.

In the Office Action, the Examiner has objected to the specification for a number of informalities. As noted above, Applicant has amended the specification in order to correct the deficiencies pointed out by the Examiner. Accordingly, the Examiner's objection to the specification is believed to have been overcome.

The Examiner has also objected to claims 24-27 for a number of informalities. As noted above, Applicant has amended claims 24-27 to correct the deficiencies pointed out by the Examiner. Accordingly, the Examiner's objection to claims 24-27 is also believed to have been overcome.

The Examiner has objected to the drawings in that Figures 1-3 should be labeled as Prior Art. As noted above, Applicant has submitted new copies of Figures 1-3 which have been labeled as Prior Art in accordance with the Examiner's requirement.

The Examiner has rejected claims 20 and 21 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. As noted above, Applicant has amended claims 20 and 21 to correct all the deficiencies pointed out by the Examiner. Accordingly, the Examiner's § 112, second paragraph, rejection of these claims is also believed to have been overcome.

The Examiner has rejected claims 19-27 under 35 U.S.C. § 102(b) as being anticipated by Mussell et al. ("Mussell"). Applicant respectfully traverses the Examiner's § 102 rejection of the claims.

Mussell discloses a material made of individual layers of various compositions. In Fig. 1, it is in particular referred to a material combination of a solid polymer membrane. The porous layer 4 is a layer of an electrically conductive porous material having at least two portions with different mean pore sizes. It is particularly said in column 3, lines 1-4 that this is made by two or more materials. In order to obtain or prepare a material having a layer with a large mean pore size and another layer with a small pore size, it is proposed to provide a material with a large pore size and to infiltrate or coat it on one side to reduce the porosity of a portion of the material sufficiently to obtain the smallest desired porosity (column 3, lines 5-12 and column 3, line 59 to column 4, line 7). For preparing the small pore region polymer and carbon particles and a suitable carrier are used (column 3, lines 59-65). Suitable porous carbon material for use as the large pore material is carbon paper, graphite paper, carbon felts or other carbon based composites which comprise at least about 20 percent by weight of carbon (column 6, lines 9-13).

Mussell uses a known process which has certain drawbacks. In particular it is not desirable to have a surface with a texture. This has the disadvantage that contacting with a catalyst, such as a Pt-layer, is not feasible, as in Applicant's invention.

In contrast to Mussell, Applicant's invention is a single fabric, made of fibrillated fibres where the pore sizes is designed by treating the surface in various

steps by densification the web with a calendar at various temperature and nip load settings. Using this process to perform a single layer material with a changing pore size from top to bottom side is novel and a key for the fuel cell performance as the layer is made from one fabric only. Applicant's invention does not need to employ any filler for adjusting the porosity, as the porosity is only controlled by the work done by the calendar.

In Mussell, no fibrillated fibres are used. Mussell refers to powder, whereas it is known that powder due to its round shape is of contra productive nature, reducing the performance of a fuel cell.

Applicant respectfully disagrees that the process steps would have been obvious to the skilled person. In particular, Mussell uses a completely different approach when he uses a material, i.e., a carbon paper, with large pores and then to modify one side of the carbon paper by infiltrating it with carbon particles and filler materials. As stated in Mussell, this process is very complex and time-consuming.

On the other hand, in Applicant's invention no carbon particles are added as this is not desirable. Applicant has amended independent claims 19 and 22 to clearly recite this feature.

Therefore, in view of the above amendments and remarks, it is respectfully requested that the application be reconsidered and that all of claims 2-37, now standing in the application be allowed and that the case be passed to issue. If there are any other issues remaining which the Examiner believes could be resolved through either a supplemental response or an Examiner's amendment, the

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Examiner is respectfully requested to contact the undersigned at the local telephone exchange indicated below.

Respectfully submitted,

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